



BEACH NOURISHMENT FOR STORM PROTECTION

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How do you “nourish” a beach? Why feed it sand, of course. And a well-nourished beach provides better protection from scouring storm waves and punishing storm surge. The most common type of beach nourishment project in Massachusetts reuses clean material from nearby dredging projects, which is technically called “beach fill.” The primary purpose for these projects is to keep the sand in the system and find a convenient place to unload the dredged material. Although these projects can provide some storm protection, they are not designed for this purpose, and the sand can be washed away in relatively short order, causing potential environmental problems. To help extend the life of these valuable beach fill projects, and to ensure that there are no unintended environmental consequences, planning and proper design are required.

The second kind of project, technically referred to as “beach nourishment,” is designed by an engineer to add a specific amount of sand to a system to provide storm protection. Such nonstructural alternatives are the recommended form of storm protection, because seawalls, jetties, and other structures provide only temporary protection with high costs, and do not address the underlying problem. Seawalls,

for example, while providing some protection to homes and roads behind them, accelerate erosion, ultimately lowering the elevation of the fronting beach and undermining the seawall itself. Property owners down-current also face the brunt of these unnatural structures, when sand is trapped behind jetties and other structures, accelerating erosion down-current and exposing these properties to greater damage.

To help promote beach fill/beach nourishment and design projects that will last, as well as to reduce potential environmental impacts of these projects, the Massachusetts Office of Coastal Zone Management (CZM), the Department of Environmental

new sand is “compatible” with the old sand by comparing the grain sizes. Finer materials more easily erode, reducing the longevity of the storm protection and potentially smothering nearby eelgrass beds and other natural resources. Coarser material may negatively impact the recreational value and aesthetics of the beach, but will not readily erode. Consequently, material with slightly coarser or equal grain size is best, but coarser material can also be acceptable.

The slope of the beach is also important. If the new sand creates a steeper pitch to the beach, rapid erosion and redistribution of the sand is likely. Again, matching original conditions is best.

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Protection (DEP), and the Division of Marine Fisheries (DMF) are developing beach nourishment best management practices (BMPs).

The most important factor when designing a beach nourishment project is to make sure the

The beach nourishment BMPs, which include extensive additional details on using public dredging projects for beach nourishment, endangered species protection, and other topics, are currently under development.